Logistics Management Institute

Aviation System Analysis Capability Quick Response System Report Server User's Guide

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Aviation System Analysis Capability Quick Response System Report Server User's Guide

INTRODUCTION

The Aviation System Analysis Capability (ASAC) is a decision support system consisting of models, databases, and tools. It is used to support analysis of the effects of advanced aviation technologies on the air transportation system. The Quick Response System (QRS) is an automated on-line capability to access a subset of ASAC models and databases to support analysis.

The objective of the QRS Report Server is to provide analysts within the National Aeronautics and Space Administration (NASA) and throughout the integrated aviation system with a variety of relevant data. The general approach followed in designing the information system was to determine information requirements, identify common data elements, select and acquire the most relevant data sources, build the relational database, and design reports to explore the data.

In the first year of the QRS Report Server's implementation, the decision was made to emphasize airline scheduling, airline network costs, aircraft utilization, and aircraft operating costs. Consequently, the primary data sources for the QRS Report Server are the following:

- United States Department of Transportation airline service quality performance (ASQP) data
- DOT Form 41
  - DOT Form 41 financial data
  - DOT T-3/T-100 airport rank data
  - DOT T-100 flight segment data
  - DOT origin and destination survey data
- Federal Aviation Administration (FAA) Terminal Area Forecast (TAF) data
- Official Airline Guides (OAG) North American and worldwide merge data for 1993
- World jet inventory data.

Reports derived from the above data have been constructed and are categorized in the following functional groups:

- Airport data
- Carrier data
- Equipment data
- Flight segment data
- Jet engine data
- Origin and destination data
- Miscellaneous data.

Users can access reports using a forms-capable World Wide Web (WWW) browser such as Netscape or Mosaic. The remainder of this document contains detailed instructions that will help users fully exploit the available data and reports.

TYPOGRAPHICAL CONVENTIONS USED IN THIS DOCUMENT

Italic is used for names, including file names, path names, program and command names, E-mail addresses, and WWW addresses. It is also used to emphasize certain new terms or concepts when introduced, to denote titles of documents, and to cross-reference sections of this document.

"Quoted Italic" is used to indicate quoted text messages from WWW pages.

Bold is used for WWW page and section titles, user options, and menu options. Pull-down menu options are separated by forward slash marks. In the example **File/Open...**, this indicates choosing the "Open..." option from the "File" menu. Specific keys or key combinations are indicated by square brackets. For example, **[Alt+D]** indicates pressing the **[Alt]** key and the **[D]** key simultaneously.

Bold Underline is used to indicate WWW hypertext. On an actual WWW document, this hypertext would link the user to another document or another section of the same document.

ALL CAPS is used to indicate Report Server variables for which the user may supply values.

`Constant Width` is used to indicate contents of files or the output of commands. This includes examples from configuration files, E-mail messages, and program output. In examples of interactive sessions, a default response is indicated by square brackets.

In the example:

```
Do you wish to continue[y]?:
```

the default answer is "y" (for "yes").

Constant Italic is used in examples to show variables for which a context-specific substitution should be made. For example, a reference to the file `xrview.`*`platform`*`.tar.Z` indicates that the user's computer platform should be substituted for the italicized word (i.e., xrview.hpux.tar.Z or xrview.sgi.tar.Z).

Constant Bold is used in examples of interactive sessions to show text that is typed literally by the user. Specific input keys are indicated by square brackets. In the example

```
Do you wish to continue[y]?: [Enter]
```

the user responds by pressing the [Enter] key.

% denotes an ordinary user shell prompt.

# denotes a superuser or root shell prompt.

MINIMUM SYSTEM REQUIREMENTS

The following minimum system requirements are necessary for using the ASAC QRS Report Server:

- IBM-compatible personal computer (PC)
  - Windows 3.1 or above
  - Excel 4.0 (version 5.0 is recommended)
- Apple Macintosh
  - System 7
  - Excel 5.0
- UNIX workstations
  - Supported platforms
    - Hewlett-Packard HP-UX 9.0 or above
    - Silicon Graphics, Inc., IRIX 5.3 or above
    - Sun Microsystems, Inc., SunOS 5.4 or above
  - X Window System version 11 release 5 (X11R5)
  - Open Software Foundation (OSF)/Motif, version 1.2
    - This product is for viewing ASAC reports on UNIX systems

- Platform-specific versions available for downloading
  - Via a WWW browser
    - **Download UNIX X Window System Report Viewer** link on the **ASAC QRS Report Server Home Page**
  - Via anonymous file transfer protocol (*ftp*)
    - ftp.asac.lmi.org in the */pub/Tools* directory

- General
  - Forms-capable WWW browser such as Netscape Navigator or NCSA Mosaic
  - Internet-connected E-mail
  - Postscript®-compatible printer.

Note: Reports can be large (200K or larger). Ensure that enough memory is available on the user's system to store and view reports.

WHAT IS A REPORT?

A report is a compilation of information from the ASAC data repositories presented in spreadsheet format. A report specification containing report title, column headings, and data row information has been defined for each report.

Many reports contain report variables allowing the user to customize the report. For example, a report may contain the variable OAG CARRIER CODE. A user can enter the OAG CARRIER CODE "UA" to constrain the report to United Airlines information only.

ACCESSING THE ASAC QRS REPORT SERVER

The ASAC QRS Report Server is available through a series of hypertext links from the **ASAC Home Page**. These links are represented in Figure 1. From the **ASAC Home Page**, select the **ASAC Quick Response System (QRS)** link to access the **ASAC Quick Response System Welcome Page**. A user ID and password are required to access the ASAC QRS further. To request a user ID and password, select the **Become a member of the ASAC Quick Response System** hypertext link from the **ASAC QRS Report Server Welcome Page**. Follow directions to complete and submit the request form.

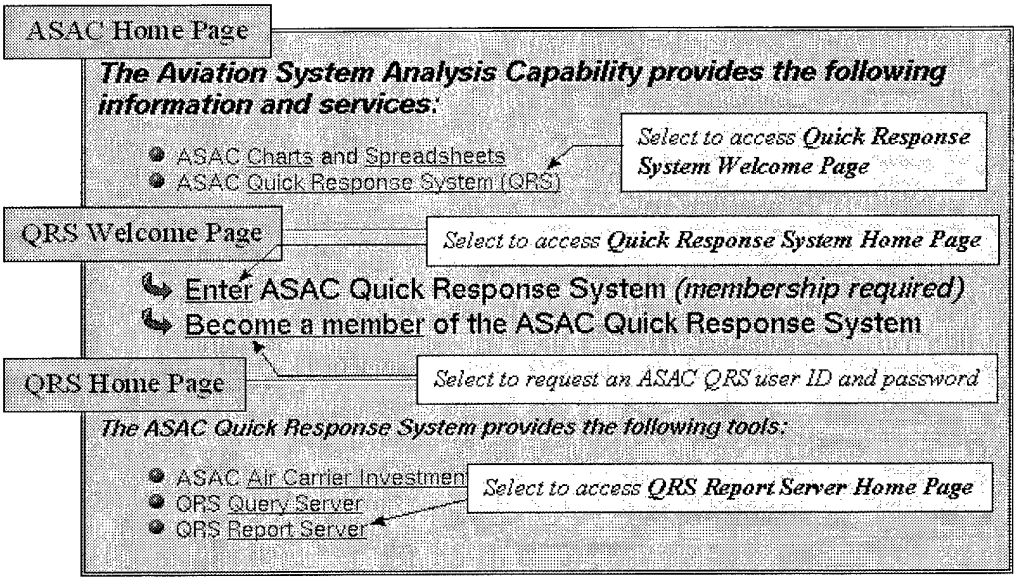


Figure 1.
Accessing the ASAC QRS Report Server

Continue by selecting the **Enter ASAC Quick Response System** link to access the **ASAC Quick Response System Home Page**, then the **QRS Report Server** link to access the **ASAC QRS Report Server Home Page**.

GETTING HELP USING THE ASAC QRS REPORT SERVER

Users who require help while using the ASAC QRS Report Server should refer to the **Need Help?** section of the **ASAC QRS Report Server Home Page**) (Figure 2). This section contains hypertext links to the following:

- Frequently Asked Questions (FAQ)
- Definitions of Key Terms
- Data Source Descriptions
- On-line Help
- Change your ASAC QRS Password
- Download ASAC QRS User's Guide
- Download UNIX X Window System Report Viewer
- Send us E-mail with other questions.

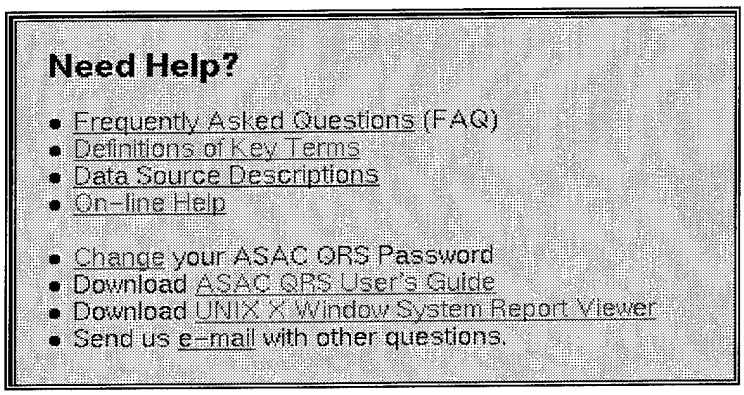


Figure 2.
Need Help? Section of Report Server Home Page

Help Page Links

The **Frequently Asked Questions Page** provides the answers to questions that users have asked the most while using the system. Accessing this page is the best first stop in solving any problems that may arise. The **Definitions of Key Terms Page** defines terms found in reports and on Report Server pages. This page is useful, for example, in understanding report column headings. The **Data Source Descriptions Page** gives information on each of the sources from which the data are obtained. There are descriptions of the data as well as information on the organization that supplied the data for the QRS. The **On-Line Help Page** provides a hypertext version of this user's guide. Questions or problems not addressed in these pages can be sent via electronic mail using the **Send us E-mail with other questions** link.

Note: Data source descriptions and key term definitions are also provided as appendices to this document.

Change Your ASAC QRS Password

The **Change Your ASAC QRS Password** link allows the user to change his or her ASAC QRS password. Selecting this link takes the user to the **ASAC QRS Change Password Page** (Figure 3).

The user's ASAC QRS login name is pre-filled on this page. A user may change only the password for the User Name by which he or she is currently authenticated (logged in). It is necessary to enter the old password once and the new password twice. If any errors occur while changing the password, they are reported to the user. Otherwise, the user receives a message stating *"Your password has been changed successfully."* After changing the password, the WWW browser may ask the user to re-authenticate. This is normal. If asked to reauthenticate, enter the new password.

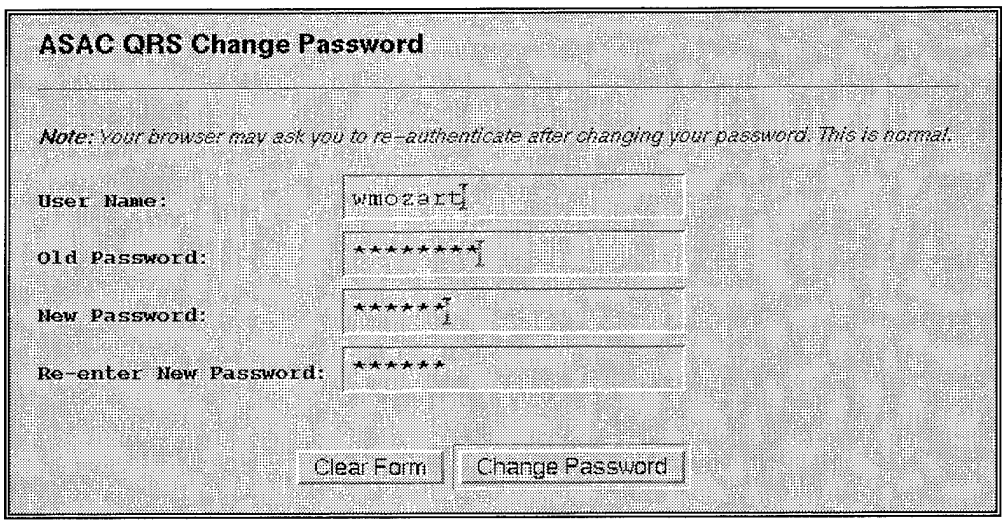


Figure 3.
ASAC QRS Change Password Page

Other Help Links

Additional links in this section allow the user to download *the ASAC QRS User's Guide* and the *ASAC UNIX X Window System Report Viewer*. Postscript-compatible and Microsoft Word versions of the user's guide (this document) are available for downloading via a WWW browser from the **Download ASAC QRS User's Guide** link. Notices are posted on the **ASAC QRS Report Server Home Page** whenever this document is updated.

Platform-specific versions of the ASAC QRS X Window System Report Viewer (*xrview*) software are available for downloading via a WWW browser from the **Download UNIX X Window System Report Viewer** link. More information on the *ASAC QRS X Window System Report Viewer* can be found in the section *UNIX Viewer Format Users*, on page 15.

USING THE ASAC QRS REPORT SERVER

Three layers of WWW pages exist within the ASAC QRS Report Server area. They are the

- Category List Page,
- Report List Page, and
- Request Page.

Category List Page

The **Category List Page** (Figure 4) is displayed upon successful login to the ASAC QRS Report Server area. The **Category List Page** contains major report categories as well as links to pages containing lists of all the reports. Select a **List All...** hypertext link for an alphabetical list of all reports or a numbered report category hypertext link to display the **Report List Page** for that category.

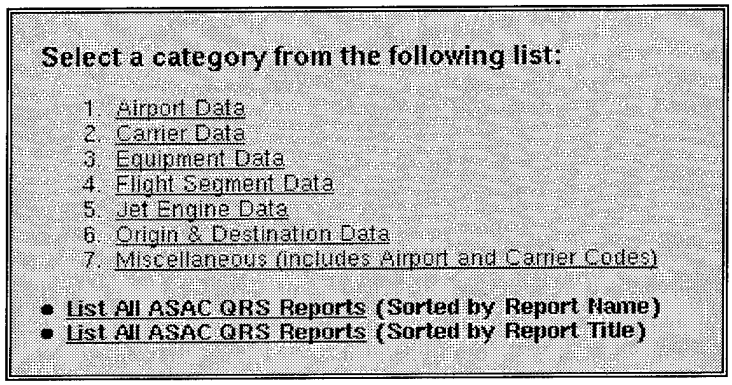


Figure 4.
Category List Page

Report List Page

There are two types of report list pages. One type lists all of the reports available on the QRS Report Server (Figure 5). There are two distinct pages with this list; one sorts the reports alphabetically by their report names, while the other sorts them by their titles. The other type of report list shows a separate **Report List Page** (Figure 6) for each report category. The **Report List Page** lists reports germane to the selected report category. Select the desired hypertext link to display the **Request Page**.

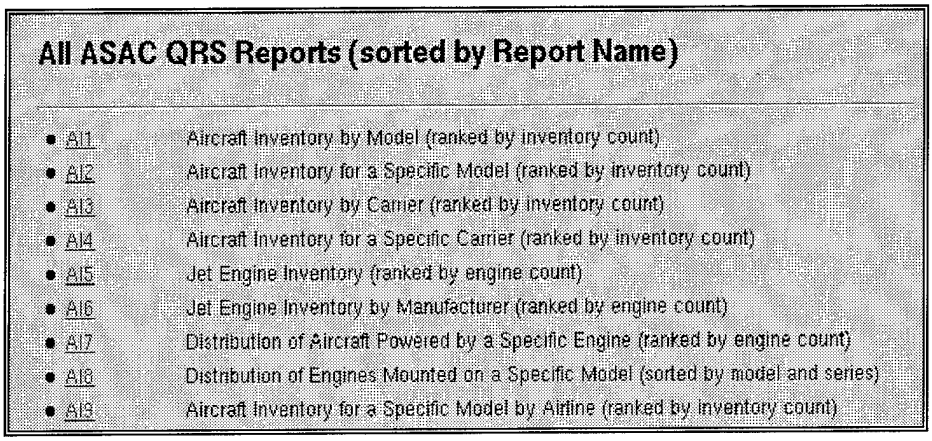


Figure 5.
All ASAC QRS Reports (Sorted by Report Name) Page

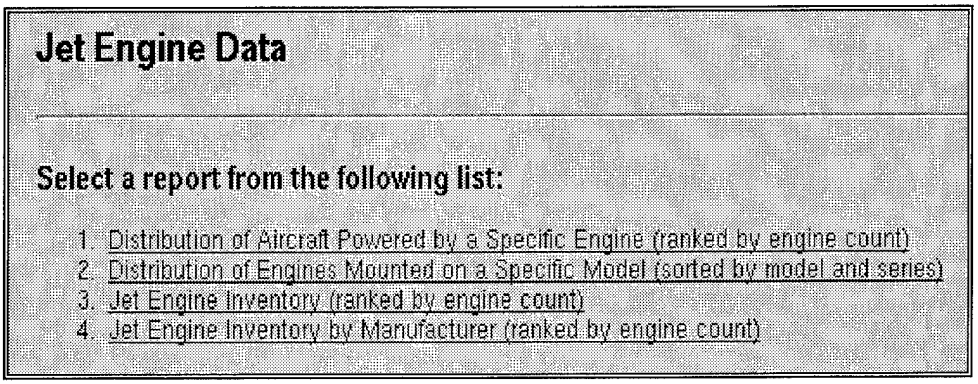


Figure 6.
Sample Report List Page

Request Page

The **Request Page** is divided into the following five sections:

- Report Information
  - Report Title
  - Report Information Source
    - Hypertext links to **Data Source Descriptions Page**
  - Report Column Headings
    - Hypertext links to **Definitions of Key Terms Page**
  - Instructions (when applicable)
- Report Variables (when applicable)
  - Get Help with Code hypertext links to the ASAC QRS Database Queries Page
- Format and Delivery Buttons
  - PC/MAC Excel or UNIX Viewer
  - Mail Notification or Mail Report
  - E-mail address
- Clear Form or Run Report Buttons
- Hypertext Links
  - **Report Categories Page**
  - **ASAC Home Page**
  - Questions, Comments, and Feedback.

The **Report Information** section (Figure 7) contains the report information specified above. When required, this section also sets forth special instructions for the report. The instructions may provide information about report variables—for example, mandatory variables. Each report column heading has a link to its definition on the **Definitions of Key Terms Page**. Each report information source has a link to its entry on the **Data Source Descriptions Page**.

OAG Daily Departures & Arrivals
Statistically Average Day for 1993
Source: 1993 OAG North American & Worldwide Merge Files

Airport Code; Hour; Number of Departures; Number of Arrivals; Total Operations

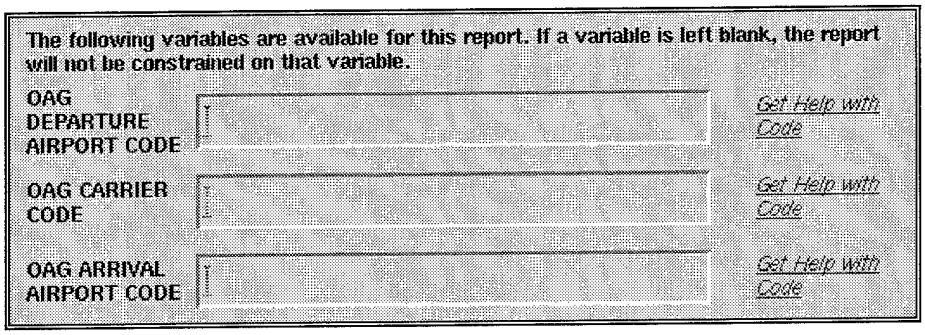
Choose a Terminal Area Productivity (TAP) Airport from the available option menu.

TAP Airports and Codes

Airport Code	Airport Name
ATL	Hartsfield, Atlanta, Georgia
BOS	Logan, Boston, Massachusetts
SFO	San Francisco International, San Francisco, California
DFW	Dallas/Ft. Worth International, Dallas/Ft. Worth, Texas
DTW	Wayne County, Detroit, Michigan
EWR	Newark International, Newark, New Jersey
JFK	J. F. Kennedy International, New York, New York
LAX	Los Angeles International, Los Angeles, California
LGA	La Guardia, New York, New York
ORD	O'Hare, Chicago, Illinois

Figure 7.
Report Information Section

The **Report Variables** section (Figure 8), when applicable, allows the user to customize the report. Report variables are either mandatory or optional.



The following variables are available for this report. If a variable is left blank, the report will not be constrained on that variable.

OAG DEPARTURE AIRPORT CODE — *Get Help with Code*

OAG CARRIER CODE — *Get Help with Code*

OAG ARRIVAL AIRPORT CODE — *Get Help with Code*

Figure 8.
Report Variable Section

Mandatory report variables must be entered or selected by the user. They include YEAR, MONTH, DAY, and other variables denoted by the word MUST in the report instructions.

Optional report variables allow the user to narrow the scope of information provided in a report. For example, a report may contain the variable OAG CARRIER CODE. A user can enter the OAG CARRIER CODE "UA" to constrain the report to United Airlines information only. The user can receive information for all carriers by leaving the variable field blank.

Help is available on certain variables by selecting the **Get Help with Code** link when it is available. This link connects the user either to a page displaying a table of possible values or to the **ASAC QRS Database Queries Page**, where a forms interface allows the lookup of the appropriate codes in the database.

The **Format and Delivery Options** section (Figure 9) enables the user to choose a Microsoft *Excel* format report for use on PC and Macintosh systems or else a UNIX Viewer *(xrview)* format for use on UNIX systems. Selecting the **PC/MAC Excel** option requests an *.slk* format report; the **UNIX Viewer** option requests a *.dat* format report.

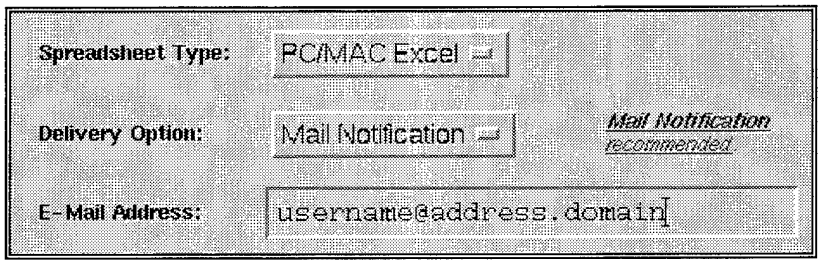


Figure 9.
Format and Delivery Options Section

Note: All user systems must meet the requirements specified in the *Minimum System Requirements* section of this document in order for the user to be able to view ASAC QRS reports.

Another user choice in the Format and Delivery Options section is to receive a **Mail Notification** message stating that the requested report is ready for downloading (the report location is included in the mail message) or to receive the report as an attachment via E-mail (**Mail Report**).

Note: Once a report is requested, that instance of the report is stored in the QRS Report Server cache. If the exact report requested has been requested recently by any user and the **Mail Notification** option is chosen, the report is available for downloading immediately after **Run Report** is selected. If the **Mail Report** option is chosen, the report is mailed to the specified E-mail address. The report is not made available for downloading.

The user's E-mail address is the final field in the **Format and Delivery Options** section. E-mail messages generated by the **Mail Notification** and **Mail Report** options are sent to the address specified in the E-mail address field.

The **Clear Form** or **Run Report** section (Figure 10) allows the user to **Clear Form** variables and user inputs or **Run Report** as specified. When **Run Report** is selected, one of six possible screens is displayed:

- When the user selects **Mail Notification**, the message *"Notification of the report's completion will be mailed to user@mail.address."* is displayed if the report has not recently been requested.
- If the user selects **Mail Report**, the message *"The report will be mailed to user@mail.address."* is displayed.
- If the user selects **Mail Notification** and the exact report has recently been requested by any user, the message *"The report is ready for downloading"* and the **Download Report** hypertext link are displayed.
- If the user attempts to run a report without entering variables when at least one variable is required, the message *"The report requested requires a minimum of X variable value(s), but only Y variable value(s) have been entered. Please enter at least X variable value(s) and re-run the report."* is displayed.
- If the user attempts to run a report without entering variables when one or more variables are mandatory, the message *"The report requested requires the following variable(s) to have a value, but no value has been supplied: variable name(s)"* is displayed. Mandatory variables must be entered to run a report.
- If the user attempts to run a report with an invalid code, the message "The value 'XXX' is not valid for variable 'VARIABLE NAME'. Please supply valid values for the specified variables, and re-run the report. If help is needed on a specific variable, select the **Get Help with Code** link beside the variable, or here for help on all variables." is displayed.

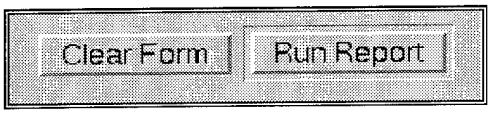


Figure 10.
Clear Form or Run Report Section

RECEIVING REPORTS

Users who selected **Mail Notification** and received the message *"Notification of the report's completion will be mailed to user@mail.address."* will

receive the following E-mail message:

```
ASAC INFORMATION SYSTEM
-----------------------
The report you requested is now ready.
Report Identifier:    XXX-1
Report Variables:     VARIABLE=YYY
It may be downloaded from
ftp://www.asac.lmi.org/pub/Reports/XXX-1AAAa01035.slk
It is also available via anonymous ftp from
www.asac.lmi.org as pub/Reports/XXX-1AAAa01035.slk
Tue Dec 26 12:49:56 EST 1995
```

The report is now available for downloading with a WWW browser or via anonymous *ftp*. The actual message varies depending upon the report selected and the report variables.

The report is immediately available for users who selected **Mail Notification** and received the message *"The report is ready for downloading."* Select the **Download Report** hypertext link to save or download the report file.

Users who select **Mail Report** receive the message *"The report will be mailed to user@mail.address."* When the report is complete, these users receive the following E-mail message:

```
ASAC INFORMATION SYSTEM
-----------------------
Attached is your requested report.
Report Identifier:    XXX-1
Report Variables:     VARIABLE=YYY
Tue Dec 26 12:53:31 EST 1995
```

The report is attached to the E-mail message. The actual message varies depending upon the report selected and the report variables.

Note: When downloading or receiving a file, ensure that an existing report is not unintentionally overwritten.

VIEWING ASAC QRS REPORTS

This section sets forth information on

- Reading a Report,
- Blank Reports, and
- Large Reports and Remainder Rows.

Reading a Report

The format of ASAC QRS reports should look familiar to spreadsheet users. Both the PC/Macintosh and UNIX versions of the reports use common spreadsheet principles to display the report.

ASAC QRS report spreadsheets have two types of data cells. The first type contains data retrieved directly from the ASAC data repositories and formatted for display. The other type contains a formula that references other cells in the spreadsheet. These formulas are resolved at display time, and the value of the cell is displayed.

Figure 11 shows a portion of a typical ASAC QRS report. The top three rows contain the title of the report, information on how the data are sorted, and the source of the data. This is the same information that is contained on the **Request Page**. The shaded cells contain headings describing the contents of the columns. Most reports have summary or total rows at the top or bottom. These rows provide statistical summaries for the column data such as sums, ratios, and standard deviations. The data rows are last.

OAG Airport Statistics								
(ranked by flight count)								
Source: 1993 OAG North American & Worldwide Merge Files								
Departure Code	Airport Name	Average Seats	Load Factor	Average Stage Length	Flight Count	Share	Number of Passengers	Share
Total			62.70%	403	193,384		12,249,991	
PIT	Pittsburgh, Pennsylvania, USA International	137	51.60%	404	192,635	0.387%	12,230,783	0.157%
PIX	Pico Island, Portugal (Azores)	46	62.70%	74	749	99.613%	19,208	99.843%

Figure 11.
Sample ASAC QRS Report

Blank Reports

Certain reports may contain no data. These cases indicate that no data exist in the ASAC data repositories for the variable values that the user specified when running the report. Running a report with invalid variable values does not result in a blank report; instead a message is displayed noting the error (see additional information in the section *Using the ASAC QRS Report Server* section on page 7).

Large Reports and Remainder Rows

Because of the volume of data in the ASAC data repositories, certain reports may have a large number of rows. In the event that a report exceeds 2,000 rows, it is truncated. The data contained in the remaining rows (rows 2,001 to the end) are summarized in the last row of the report, called the re-

mainder row. Any calculated column totals include the data from this remainder row.

PC AND MACINTOSH *EXCEL* FORMAT USERS

This section contains information on

- Viewing *Excel* Format Reports and
- Saving *Excel* Format Reports.

Viewing *Excel* Format Reports

Start the *Excel* application. Select **File/Open**. In the Open dialog, either change the List of File Types from **Microsoft Excel Files (*.xl*)** to **All Files (*.*)** or change the File Name from ***.xl*** to ***.***. This change enables the report file to be displayed in the File Selection dialog. Select the appropriate drive, directory, and file. Select **OK**. After the file is loaded into *Excel*, it can be used as any *Excel* spreadsheet file would. For example, it may be modified, copied, or printed.

Note for PC *Excel*, version 4.0, users: When preparing a report file for printing, the "Fit to: X page(s) wide by X tall" option under **Page Setup/Page/Scaling** does not always work properly. Use the "Adjust to: X% normal size" option as a workaround.

Note for Macintosh *Excel*, version 5.0 or above, users: The memory allocated to *Excel* must be greater than 4,000K, or an "out of memory error" will be received when loading report files. To check or change the memory allocation for *Excel*, single-click on the Excel icon. Select **File/Get Info**. If necessary, change the Memory Requirements to greater than 4,000K.

Saving *Excel* Format Reports

If the user modifies the report, the changed report should be saved as an *Excel* spreadsheet *(*.xls)*.

UNIX VIEWER FORMAT USERS

This section sets forth the following information on the ASAC QRS X Window System Report Viewer (*xrview*):

- Installation procedure
- Application resource file

- Starting *xrview*
- File menu
- Display menu
- Help menu.

Installation Procedure

Downloading the Software Package

Platform-specific versions of the *xrview* software package are available for downloading via a WWW browser from either the **Download UNIX X Window System Report Viewer** link on the **ASAC QRS Report Server Home Page.** *Xrview* is also available via anonymous *ftp* from *ftp.asac.lmi.org* in the **/pub/Tools** directory. The software is packaged in three different ways for each platform:

- UNIX tape archive format, compressed with *compress* (*xrview*.platform.*tar.Z*)
- UNIX tape archive format, compressed with *gzip* (*xrview*.platform.*tar.gz*)
- UNIX shell archive format, uncompressed (*xrview*.platform.*shar*).

Users should choose the package format most appropriate for their system configuration.

Note: Users should contact their system administrator if they are having trouble downloading the software package or if they are unsure of the appropriate format or platform to download.

What the Software Package Contains

Each software package contains the following files:

♦ *xrview*	executable program
♦ *lmi-small.xbm, nasa-icon.xbm*	program bitmap files
♦ *keyboard.hlp, xrview.hlp*	program help files
♦ *XRview*	default application resource file
♦ *install_xrview*	installation script
♦ *usrguide.ps*	this user's guide in Postscript format
♦ *README*	program information and installation instructions.

UNPACK THE SOFTWARE FILES

In UNIX, the following steps are performed to unpack the software files:

- Create a temporary directory to hold the files:

```
% mkdir temp
```

- Move the archive file to the temporary directory, using **one** of the following UNIX commands as appropriate for the archive file format:

```
% mv xrview.platform.tar.Z temp
% mv xrview.platform.tar.gz temp
% mv xrview.platform.shar temp
```

- Change to the temporary directory:

```
% cd temp
```

- Unpack the files, using **one** of the following UNIX commands as appropriate for the archive file format:

```
% uncompress -c xrview.platform.tar.Z | tar xvf -
% gunzip -c xrview.platform.tar.gz | tar xvf -
% sh xrview.platform.shar
```

INSTALLING THE SOFTWARE

Install the *xrview* software package with the *install_xrview* program. Installation should be done by the system administrator or by a user with system administrator privileges. During installation, the administrator is prompted for installation directories. Enter the name of the appropriate directory or accept the default directory name [in brackets] by pressing the **[Enter]** key. Directories are created if they do not exist. The following example installation session transcript is annotated to describe the installation steps:

- Begin installation.

```
# chmod +x install_xrview
# ./install_xrview
```

- The installation directory is the location where the program files will be stored. For this example, the default directory is accepted.

```
Enter installation directory [/usr/local/asacqrs]: [Enter]
creating directory /usr/local/asacqrs...
```

- The executable directory is the location where the program files will be stored. For this example, the default directory is changed.

```
Enter executable directory [/usr/local/bin]: /usr/contrib/bin
creating directory /usr/contrib/bin...
```

- The program files are automatically copied to the appropriate directories.

```
copying xrview to /usr/local/asacqrs
copying lmi-small.xbm to /usr/local/asacqrs
copying nasa-icon.xbm to /usr/local/asacqrs
copying keyboard.hlp to /usr/local/asacqrs
copying xrview.hlp to /usr/local/asacqrs
/usr/local/bin/xrview linked to /usr/local/asacqrs/xrview
```

- The app-defaults directory is the location of systemwide X Window System application default files. The *xrview* application resource file (*XRview*) must be installed in this location for the application to function properly. The installation directory entered above is automatically added to the resource file before copying.

```
Enter app-defaults directory [/usr/lib/X11/app-defaults]: [Enter]
copying XRview to /usr/lib/X11/app-defaults
Installation complete
```

- Remove the temporary directory

```
% cd ..
% rm -rf temp
```

ADDING THE SOFTWARE TO THE USER'S PATH

The executable directory specified above should be set in the user's path environment variable. Installation of *xrview* in a common system directory (e.g., */usr/local/bin or /usr/contrib/bin*) is the best way to accomplish this. Users should contact their system administrator if they are unsure of how to set their path variable.

Application Resource File

The system default application resource file for *xrview*, named *XRview*, is installed by the installation script (above), probably in */usr/lib/X11/ app-defaults*. Users may copy this file into their *$HOME* directories and modify it for their personal preferences. The following annotations describe the resources.

- These resources affect the appearance of the program. Do not change these resources:

```
*rowLabelAlignment:          alignment_end
*boldLabels:                 True
*cellHighlightThickness:     0
```

- This resource affects the background color of the status bar along the bottom of the *xrview* window:

```
*statusBar.background:  red
```

- These resources affect the default height and width (in pixels) of the *xrview* window. The window may be resized with the mouse during program operation:

```
*mainWindow.height:     480
*mainWindow.width:      640
```

- These resources affect the fonts used to display text objects and data. They should be adjusted to best fit the user's system setup:

```
*fontList:              *helvetica-bold-r-normal--14*
*statusBar.fontList:    *helvetica-bold-o-normal--14*
*titleBar.fontList:     *helvetica-bold-r-normal--18*
*XmText.fontList:       *helvetica-bold-r-normal--14*
*XmTextField.fontList:  *helvetica-bold-r-normal--14*
*helpText.fontList:     *courier-medium-r-normal--12*
```

- This resource sets the default printer command for *xrview*:

```
*printerCommand:        lp
```

This resource sets the location of the program files. It should not be changed unless the program files are moved. For this example, the install path directory is the default directory accepted in the Installing the Software subsection:

```
*installPath:           /usr/local/asacqrs
```

Starting *xrview*

The *xrview* program may be started either with no command line arguments or with any of the following:

- *-f* or *-file <filename>* — specify startup data file name
- *-h* or *-help* — display usage information

- *-pr* or *-printer <printer command>* — specify default UNIX printer command.

For example, *xrview -f myfile.dat* starts *xrview* and opens file *myfile.dat.*

Standard X Window System command line arguments may also be used. A subset of useful X Window System command line arguments follows:

- *-geometry <widthxheight+xpos+ypos>* — geometry of program window
- *-background <color>* — window background color
- *-foreground <color>* — window text color.

For example, *xrview -background purple* starts *xrview* and changes the background color of *xrview* to purple.

File Menu

The **File** menu contains options to open and close report data files, save report data to a text file, print a report, or exit the program (Figure 12). Access the **File** menu with the mouse or by pressing **[Alt+F]**.

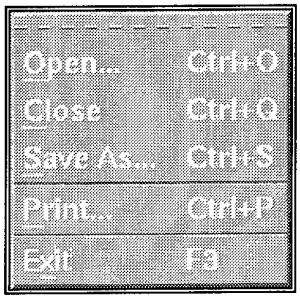


Figure 12.
File Menu

Opening a Report File

To load a report file into *xrview*, choose **File/Open**. A file selection dialog appears. Use this dialog to navigate the directory structure and select a file to load. If a file is already open, it is automatically closed before the new file is opened. Users cannot open multiple files concurrently within the same *xrview* session.

Viewing a Report File

The ASAC QRS X Window System File Viewer is designed to allow only read-only access to report files. Users cannot make changes to the file while it is loaded in *xrview.*

The *xrview* window may be resized using the mouse. When applicable, horizontal and vertical scroll bars allow the user to scroll through the file loaded in *xrview*.

CLOSING AN OPEN REPORT FILE

Close an open report file by choosing **File/Close**. Users are prompted to confirm the file closure. This option is available only when a file is loaded in *xrview*.

SAVING (EXPORTING) A REPORT FILE AS A TEXT FILE

By choosing **File/Save As...**, users can save an open report file as a formatted text file for possible importing into other software programs. The **Save File As** dialog is displayed (Figure 13). Report file data in the open report file may be saved with tab or comma delimiters and as formatted text or values.

Choose the data delimiter for the exported file by selecting either the **Tab Delimited** or **Comma Delimited** toggle button. Only one option is allowed at a time.

Choose the data format for the exported file by selecting either the **Formatted Text** or **Values Only** toggle button. Only one option is allowed at a time. The **Formatted Text** option saves the data complete with column headers and number formatting, such as dollar signs and commas. The content of the saved file is the same as that of the display. This option is useful for importing the data into a report or presentation. The **Values Only** option saves the data values only. There are no column headers, and the number values are unformatted and appear with full precision. This option is used for importing the data into an analytical tool or spreadsheet program.

Select **OK**. The user is prompted before overwriting an existing file.

Note: Files saved using this option are in a format different from those loaded by *xrview*. Take care not to overwrite the loaded data file. Do not try to load this new file into *xrview*.

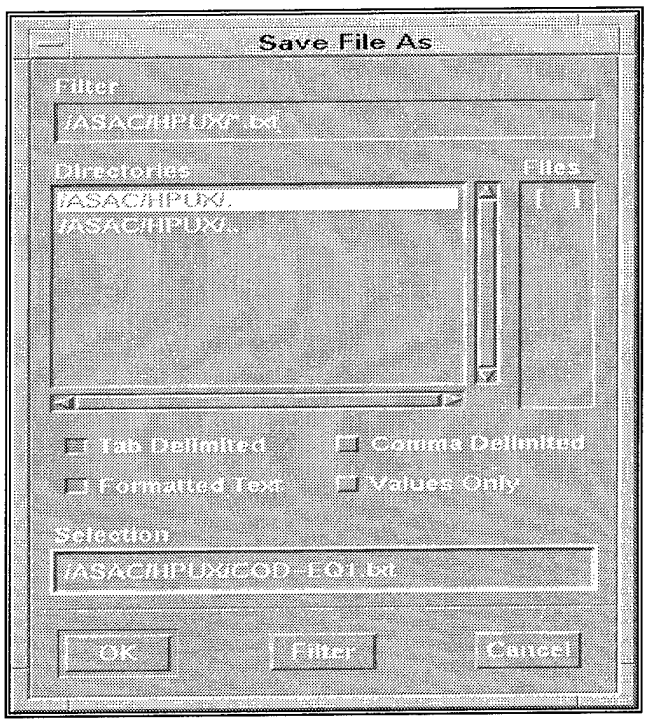


Figure 13.
Save File As Dialog

PRINTING A REPORT

The report file may be printed to a Postscript-compatible printer or to a file. If the workstation being used is not connected to a printer, transfer the file to a computer with a Postscript-compatible printer to print. The user has an option to print all of the pages or a selected range. To print, select the **File/Print....** The **Print** dialog is displayed (Figure 14).

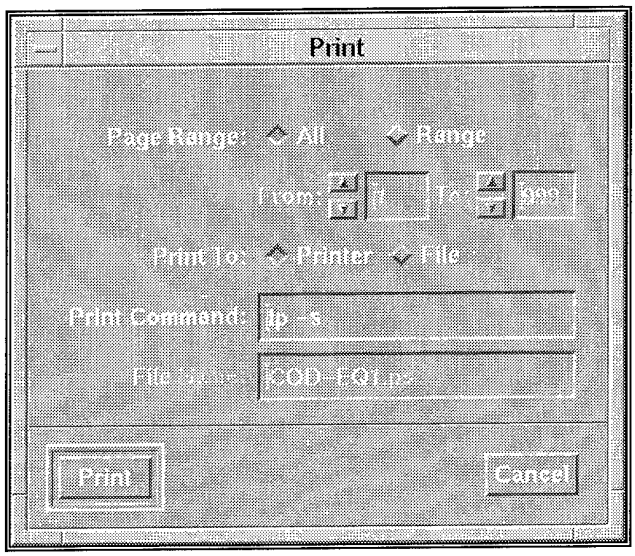


Figure 14.
Print Dialog

Choosing a Range of Pages to Print

The user may choose to print all of the report pages or a range of pages. To print all pages, choose the **Page Range: All** toggle button on the **Print** dialog. To print a range of pages, choose the **Page Range: Range** toggle button on the **Print** dialog. Then use the page range fields to specify the first and last pages to print. Either type the page number in the box or use the spin wheel to adjust the range. The value for the last page field may safely exceed the number of pages in the report; only the actual number of pages is printed.

Printing to a Printer or File

To print to a printer, choose the **Print To: Printer** toggle button on the **Print** dialog. The **Print Command** field can be edited to contain the appropriate print command. This field defaults either to *lp*, the string entered as the ***printCommand** resource, or to the string entered on the command line with the **-pr** or **-printer** option. Select **Print**.

To print to a file, choose the **Print To: File** toggle button on the **Print** dialog. The **File Name** field can be edited to contain the name of the file to which the user wants to print. This field defaults to a name constructed of the base name of the loaded data file with a *.ps* suffix. Select **Print**. The user is prompted before overwriting an existing file.

EXITING *XRVIEW*

To exit *xrview*, choose **File/Exit** menu. The user is prompted to confirm this choice before exiting.

Display Menu

The **Display** menu (Figure 15) contains options for reviewing report data in a formatted display or as unformatted values. Displaying formatted values presents the data numbers with formatting characters, such as dollar signs and commas, and displays decimal values with a specified precision. When displayed as unformatted values, numbers do not contain formatting characters and appear with full precision. Access the **Display** menu with the mouse or by pressing **[Alt+D]**.

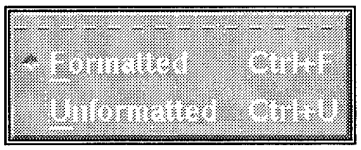


Figure 15.
Display Menu

The default format for viewing report data is as formatted data. To return to this format after changing it, select **Display/Formatted**. To view the data as unformatted values, select **Display/Unformatted**.

Help Menu

The **Help** menu (Figure 16) contains options for displaying various program help documents. Access the **Help** menu with the mouse or by pressing **[Alt+H]**.

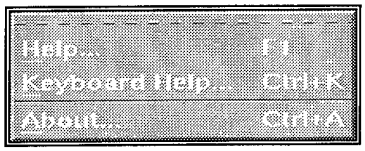


Figure 16.
Help Menu

VIEWING ON-LINE HELP DOCUMENT

This users' guide is available on-line in text format by choosing **Help/Help**. A hypertext version of this document is available via the **On-Line Help** link on the **ASAC QRS Report Server Home Page**. Postscript-compatible and Microsoft Word versions are available for downloading via a WWW browser from the **Download ASAC QRS Report Server User's Guide** link on the **ASAC QRS Report Server** Home Page.

VIEWING KEYBOARD SHORTCUT HELP DOCUMENT

A keyboard shortcut help document is available by choosing the **Help/Keyboard Help**.

VIEWING APPLICATION INFORMATION

Information about the *xrview* application, including the current version number, is available by choosing **Help/About**.

HOW TO RECEIVE SUPPORT

To receive support or to report problems in this or any ASAC QRS software program, use the **ASAC Questions, Comments, or Feedback** link (available on all ASAC pages) or send an E-mail message describing the problem to *asachelp@spock.lmi.org*. Be sure to include user's name and a phone number where the user can be reached if further information is needed. If possible, include the name or title of the report being accessed and the values of the report variables.

APPENDIX A

ASAC QRS Data Source Descriptions

INTRODUCTION

This appendix describes the sources of the various data used by the Aviation System Analysis Capability (ASAC) Quick Response System (QRS) Report Server. These sources are as follows:

DATA SOURCE DESCRIPTIONS

- United States Department of Transportation airline service quality performance (ASQP) data
- DOT Form 41
  - DOT Form 41 financial data
  - DOT T-3/T-100 airport rank data
  - DOT T-100 flight segment data
  - DOT origin and destination survey data
- Federal Aviation Administration (FAA) Terminal Area Forecast (TAF) data
- Official Airline Guides (OAG) North American and worldwide merge data for 1993
- World jet inventory data.

DOT Airline Service Quality Performance Data

The regulations governing airlines are published in the Code of Federal Regulations (CFR). The Airline Service Quality Performance (ASQP) data are collected by the Department of Transportation under authority of 14 CFR, Part 234, Airline Service Quality Performance Reports. Details on who must report, reporting dates, media and format for submission, data elements to be reported, and other reporting details are contained therein. In general, carriers with 1 percent or more of total domestic scheduled-service passenger revenues are required to report data for their flights involving any airport in the contiguous states accounting for 1 percent or more of domestic scheduled-service passenger enplanements. The regulation also provides for the voluntary reporting of a carrier's entire domestic system and for voluntary reporting by other carriers.

Departure and arrival times are local times at the departure and arrival airports, respectively. They are expressed in terms of a 24-hour clock. The day starts at 0000 (midnight) and ends at 2359. Adjustments for time zone or daylight savings time are included in the calculations for time differences or elapsed times, but no permanent changes are made to the local departure or arrival times. Flights that depart in one day and arrive in the next, according to the carrier's Computer Reservation System (CRS), are given the date that they are scheduled to depart. Thus, a flight with a CRS scheduled departure time before midnight on the last day of the month and a scheduled arrival time the following day will be shown as an operation in the earlier month. Records for canceled flights contain valid OAG and CRS departure and arrival times, but the actual departure and arrival times are "NULL." As stated in the regulation, no data for flights canceled for mechanical reasons appear in this file. Records for diverted flights contain valid OAG, CRS, and actual departure times, but only OAG and CRS arrival times (the actual arrival time is "NULL").

These data are reported on a monthly basis from September 1987 forward. The data are transmitted on 3480 cartridges that may be purchased directly from

Department of Transportation
John A. Volpe National Transportation System Center
ATTN: Ms. Patricia Harrington
Kendall Square
Cambridge, MA 02142
Phone: (617) 494-2450

DOT Form 41 Data

The CFR defines "large air carriers" as all companies (except helicopter carriers) that meet both of the following criteria:

- Companies engaged in *air transportation*, defined as the carriage by aircraft of persons, property, or mail in the United States.
- Companies operating *large aircraft*, defined as aircraft designed to have a maximum passenger capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds.

These companies must have a *Certificate of Public Convenience and Necessity* issued by the U.S. Department of Transportation, according to the Federal Aviation Act of 1958. These large air carriers are required to maintain records and file reports according to 14 CFR, Part 241, Uniform System of Accounts and Reports for Large Certificated Air Carriers. Details on who must report, reporting dates,

media and format for submission, data elements to be reported, and other reporting details are contained therein. The DOT Form 41 data described below may be purchased on compact disc directly from

Data Base Products
12770 Coit Road, Suite 1218
Dallas, TX 75251
Phone: (800) 345-2876
Fax: (214) 233-0594

DOT Form 41 Financial Data

DOT Form 41 financial data are reported to the U.S. DOT's Research and Special Projects Administration (RSPA) by air carriers via the Form 41. Among the Form 41 financial schedules are balance sheet (B-1); statement of operations (P-1); transport revenues, depreciation, and amortization (P-3); aircraft operating expenses (P-5); operating expenses by objective and functional groupings (P-6, P-7); and aircraft and traffic servicing, promotion, and sales expense (P-8). Also included are employment statistics by labor category (P-10) and U.S. air carrier traffic and capacity data by equipment type (T-2).

DOT T-3/T-100 Airport Rank Data

Airport activity statistics are reported by airlines on Schedule T-3. This report contains many interesting statistics reported by each carrier for every U.S. airport served. For their total system operations, carriers report both scheduled and non-scheduled departures performed, enplaned passengers, tons of freight, and tons of mail. To the T-3 data are added the following summary data elements from the T-100 flight segment data: available seats, onboard passengers, tons available, block hours, and aircraft miles traveled. It should be noted that T-100 flight segment data are available only for domestic operations and are only currently (since the beginning of 1990) being reported by U.S. passenger carriers. On the other hand, T-3 data—while reported for U.S. airports only—represent totals of all operations (whether domestic or international) and are available for U.S. passenger carriers as well as U.S. freight carriers.

DOT T-100 Flight Segment Data

DOT T-100 flight segment data contain information from each of the reporting carriers for their nonstop domestic U.S. market segments. The data elements reported by equipment type include onboard passengers, freight and mail, number of departures, segment distance, available seats, freight capacity (in pounds), block time, and airborne time. T-100 is a newer T-schedule that has been reported only since January 1990. Prior to that, similar data were reported on either Schedule T-9 (Non-Stop Market Report) or ER586 (Service Segment Data), depending on the size and startup date of the carrier.

DOT Origin and Destination Survey Data

A single origin and destination (O&D) survey is conducted continuously by the large U.S.-certificated air carriers. The survey samples revenue passenger trips moving in whole or in part on domestic- and/or international-scheduled services of the carriers participating in the survey. In general, these requirements do not apply to small-certificated, all-cargo, and all-charter carriers.

The source documents for the O&D survey data are passenger tickets. The data are collected from the lifted flight coupons of tickets (a portion of a multipart ticket booklet of three or more coupons, including one for each stage of the passenger's trip itinerary that is lifted by the carrier as the passenger boards a particular flight segment). The complete passenger itinerary, and related data on type of fare and dollar value of the ticket, are recorded as one entry from the sampled, reportable flight coupon. Beginning 1 July 1987, the survey is collected primarily on the basis of a stratified, scientific sample of at least 1 percent of tickets in domestic major markets, 10 percent of tickets in all other domestic markets, and 100 hundred percent of tickets in international city-pair markets. The ASAC QRS Report Server provides domestic O&D data only.

FAA Terminal Area Forecast Data

The FAA Terminal Area Forecast (TAF) database gives historical data and forecasts for several measures of aviation activity for about 4,000 U.S. public-use airports. It is maintained by the FAA Office of Aviation Policy, Plans, and Management Analysis.

Present ASAC TAF data come from the FY93 through FY05 TAF release. They give historical records for FY87 through FY91, and forecasts for FY92 through FY05.

Each TAF record contains information about the airport, (such as identification code, number of runways, number of instrument landing systems (ILSs), enplanement capacity, and average number of days per year allowing visual flight rules (VFR) operations), as well as observations and forecasts of aviation activity measures for FY87 through FY05. Activity measures include items such as air carrier enplanements, air taxi enplanements, commuter enplanements, international enplanements, air carrier itinerant operations, air taxi itinerant operations, and general aviation itinerant operations.

Reports such as *Terminal Area Forecasts—Fiscal Years 1993-2010, FAA-APO-94-11*, give further information on the TAF. That report is available to the public from

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22151
Phone: (703) 487-4650

Official Airline Guides North American and Worldwide Merge Data

Official Airline Guides (OAG) North American and worldwide merge data sets are used to produce the North American and worldwide editions of the OAG. As the name implies, the files contain machine-readable data that are extracted from the OAG data banks and merged together into one computer file. After considerable processing by the Logistics Management Institute, these data provide useful summary information about airports, carriers, equipment, and flight segments.

It is important to note that the OAG data reflect flights that were scheduled to occur during 1993; obviously some of these flights were canceled for weather, operational, or other reasons. Analysts will want to cross-reference the OAG data with available T-3 airport activity statistics and T-100 flight segment data. Also, the OAG source data do not include information on aircraft seats or load factors. The average number of seats for each equipment type was estimated as the mean of the highest and lowest number of seats for which the aircraft is typically configured. Based on 1993 T-2 data, load factors were assumed as follows: 51.6 percent for all turboprop flights, 59.9 percent for jet flights less than 1,000 statute miles, and 67.3 percent for jet flights greater than 1,000 statute miles. Stage length was calculated as the great circle distance between the departure and arrival airports. From these actual and assumed figures, it was possible to estimate numbers of passengers, revenue passenger miles, and available seat miles that would have occurred in 1993 if all scheduled flights had happened.

There is also an important distinction between the carrier- and equipment-level OAG reports. Because of code-sharing arrangements, carrier-level reports include some double counting of flights. We attempted to eliminate the double counting for the equipment-level reports. Consequently, all other factors held constant, equipment-level data will be less than, or equal to, the carrier-level data.

The complete source data that underlie the OAG reports may be purchased directly from

Official Airline Guides
ATTN: Cindy McDonald
2000 Clearwater Drive
Oak Brook, IL 60521-8806
Phone: (708) 574-6150
Fax: (708) 574-6373

World Jet Inventory Data

The 1993 data were previously published by the Marketing Department of Boeing's Commercial Airplane Group in a document entitled *World Jet Airplane Inventory: Year-End 1993*. This document contained information on the world commercial jet airplane fleet (including some military derivatives) and reflected the status of this fleet as accurately as possible as of 31 December 1993. The 1993 data included all airplanes delivered to the market through year-end 1993. Not included are those airplanes that were never sold but are (or were) used exclusively for the manufacturers' private purposes, such as flight testing, route proving, short-term leasing, etc. Additionally, many older airplanes are stored intact or in derelict condition at many different locations around the world, and are not expected to fly again. The cost of restoring those airplanes to flight status often far exceeds their market value. A serious attempt was made to exclude these run-outs from the counted inventories. Conversely, airplanes in the inventories of airlines, manufacturers, and leasing companies that were parked pending resale, repairs, hushkitting, freighter conversion, etc., are included. These airplanes are still considered active and are counted in the owner / operator fleet totals. Finally, it should be noted that leased airplanes are included in the operators' fleets.

As noted above, the 1993 data were previously published by Boeing but are no longer offered by the company. Instead, current 1995 data were purchased directly from

Jet Information Services, Inc.
ATTN: Christine Francoeur
18711 198th Avenue N.E.
Woodinville, WA 98072-8840
Phone: (206) 844-9140
Fax: (206) 844-2192

APPENDIX B

ASAC Glossary

INTRODUCTION

This appendix contains a glossary of terms relevant to the Aviation System Analysis Capability.

GLOSSARY

A

Air carrier enplanements — A count of the number of passengers boarding on scheduled flights operated by air carriers. Commercial air carriers are certificated in accordance with Federal Aviation Regulations Parts 121 and 127 to conduct scheduled services on specified routes and may also provide nonscheduled or charter services.

Air carrier groupings — All large certificated air carriers are placed into three basic air carrier groupings based upon their level of operations and the nature of these operations. In order to determine the level of operations, total operating revenues for a 12-month period are used.

- Carrier group 1: revenues < $100 million
- Carrier group 2: revenues $100 million to $1 billion
- Carrier group 3: revenues > $1 billion.

Air carrier itinerant operations — Nonlocal aircraft operations performed by air carriers.

Air taxi enplanements — A count of the number of passengers boarding nonscheduled flights operated by air taxis. When data are unavailable, enplanement counts are estimated from the number of operations multiplied by an estimated number of passengers per air taxi departure, typically from one to three people.

Air taxi itinerant operations — Nonlocal aircraft operations (arrivals and departures) performed by air taxi operators or commuter/regional carriers.

Airborne hours — Aircraft hours flown computed from the moment an aircraft leaves the ground during takeoff until it touches the ground during landing.

Aircraft and traffic service costs — A cost category including the compensation of ground personnel and other expenses incurred on the ground incident to the protection and control of the in-flight movements of aircraft, scheduling and preparing aircraft operational crews for flight assignment, handling and servicing aircraft while in line operation, servicing and handling traffic on the ground subsequent to the issuance of documents establishing the air carrier's responsibility to provide air transportation, and in-flight expenses of handling and protecting all nonpassenger traffic, including passenger baggage.

Aircraft days assigned to service, carrier's routes — The number of days that aircraft owned or acquired through rental or lease are in the possession of the reporting air carrier and available for service on the reporting carrier's routes. This definition excludes the number of days an air carrier's owned or rented aircraft are in the possession of others under interchange agreements, and it includes the number of days aircraft belonging to others are in the possession of the air carrier under interchange agreements. It also includes days that aircraft are in overhaul or are temporarily out of service because of schedule cancellations.

Aircraft fuel and oil — Costs of fuel and oil issued from the stocks of the air carrier, or delivered directly by others, to aircraft for use in flight operations. Adjustments of aircraft fuel and oil inventories are entered in this account. The cost of fuel and oil used in repairs and maintenance services, and nonrefundable fuel and oil taxes are excluded from this cost category. They are included in "Shop and Servicing Supplies" and "Taxes — Other Than Payroll," respectively.

Aircraft interchange charges — Rental charges levied by other companies under aircraft interchange agreements.

Aircraft interchange maintenance charges — Maintenance charges levied by other companies under aircraft interchange agreements.

Aircraft miles flown — The great circle distance for each flight stage actually completed, whether or not performed in accordance with the scheduled pattern.

Aircraft rentals — Fees or charges incurred in the use of aircraft provided by others. Maintenance, insurance, or taxes included in a lease arrangement are excluded from aircraft rental costs and are instead reflected in the appropriate cost category.

Aircraft revenue miles flown — Aircraft miles flown in revenue service. Aircraft miles flown on nonrevenue flights — such as positioning; personnel training, extension, and development; and aborted revenue flights — are excluded.

Aircraft type — A category of aircraft (e.g., amphibian, helicopter, jet engine, piston, or turboprop).

Airframe airworthiness provisions — Airframe overhaul expenses of the current period that are capitalized in the balance sheet for amortization over future periods.

Airframe maintenance labor — Cost of direct labor expended upon airframes, spare parts related to airframes, and other flight equipment (other than aircraft engines and spare parts related to aircraft engines).

Airframe maintenance materials — Cost of materials and supplies consumed directly in the maintenance of airframes, spare parts related to airframes, and other flight equipment (other than aircraft engines and spare parts related to aircraft engines).

Airframe maintenance outside repair — External charges for maintenance or repair services of airframes, spare parts related to airframes, and other flight equipment (other than aircraft engines and spare parts related to aircraft engines).

Airframe overhaul deferred — Accounting convention for amortizing airframe overhaul costs incurred in prior periods.

Airline Service Quality Performance (ASQP) ratios — The ASQP/T-3 ratio is the ASQP departures divided by the T-3 scheduled departures. The ASQP scaling factor is the inverse of this ratio.

Airport code — A three-character code representing a specific airport. The same airport may have identical or different airport codes in the Department of Transportation (DOT), Official Airline Guides (OAG), and Terminal Area Forecast (TAF) databases.

Airport name — The name of the airport. The same airport may have identical or different names in the Department of Transportation (DOT), Official Airline Guides (OAG), and Terminal Area Forecast (TAF) databases.

Amortization of flight equipment capital leases — Amortization charges applicable to flight equipment acquired under capital leases.

Applied maintenance burden flight equipment — This cost reflects an allocated share of the total maintenance overhead (general expenses incurred in periodic maintenance operations and the maintenance and repair of property and equipment of all types and classes) that is applied specifically against flight equipment maintenance charges.

Arrival delay — The time the flight actually arrived at the gate minus the time the flight was scheduled to arrive at the gate per the Computer Reservation System.

Arrival performed — A landing made at an airport.

ASAC — See *Aviation System Analysis Capability.*

Available load — Represents the maximum salable load. It is the gross takeoff weight minus the aircraft empty weight, less the sum of all justifiable aircraft equipment and the operating load (consisting of minimum fuel load, oil, flight crew, steward's supplies, etc.) For passenger aircraft, the available load must not exceed the weight of the maximum number of passengers who can be accommodated in the seats installed in the aircraft plus the weight of the traffic that can be accommodated in the cargo space.

Available seat mile (ASM) — One available seat transported one mile. Available seat miles are computed by multiplying the aircraft miles flown on each flight stage by the number of available seats.

Available ton mile (ATM) — One ton of available load transported one mile. Available ton miles are computed by multiplying the aircraft miles flown on each flight stage by the tons of available load.

Average coupons — The number of flight coupons used divided by the number of passengers. It represents the weighted average number of times that domestic Origin and Destination passengers deplaned during their one-way itinerary.

Average fare — The total amount of fares (net of Federal Excise tax) paid by purely domestic Origin and Destination passengers divided by the total number of domestic Origin and Destination passengers. It includes the dilutive effect of zero-fare passengers.

Average stage length (ASL) — Total aircraft miles flown divided by the total number of departures performed.

Average visual flight rule (VFR) days — The average number of days per year for which visual flight rules apply at an airport.

Aviation System Analysis Capability (ASAC) — A decision support system consisting of models, databases, and tools. It is used to support analysis of the effects of advanced aviation technologies on the air transportation system.

B-C

Block-to-block hours — The time computed from the moment the aircraft first moves under its own power for purposes of flight at the originating airport until it comes to rest at the destination airport (also sometimes known as ramp-to-ramp hours).

Break-even passenger load factor — The passenger load factor multiplied by the ratio of total operating expense to total operating revenue.

Break-even weight load factor — The weight load factor multiplied by total operating expense divided by total operating revenue.

Capacity utilization ratio — Total operations divided by practical annual capacity.

Capital lease — Leasing arrangement in which a carrier retains a residual ownership in the rented aircraft at the completion of the term of the lease.

Cargo — All traffic other than passengers. It includes mail plus freight.

Carrier code — A two-character code representing a specific air carrier. The same air carrier may have identical or different codes in the Department of Transportation (DOT) and Official Airline Guides (OAG) databases.

Carrier name — The name of the air carrier to which the data apply.

Carrier type code — The type of carrier: "S" for scheduled airlines; "O" for other airlines. Scheduled services are the transportation by air of individual passengers or cargo shipments pursuant to published schedules, including extra sections and other flights performed as an integral part of published flight schedules.

Charter revenues — Revenue from nonscheduled air transport services where the party receiving the transportation obtains exclusive use of an aircraft at either a published tariff or another contractual rate and the remuneration paid by the party receiving transportation accrues directly to, and the responsibility for providing transportation is that of, the charter air carrier.

Circuitry factor — Itinerary miles flown divided by great circle distance. This is a measure of how direct the average passenger's routing was between the origin and destination airports.

Commuter or regional enplanements — A count of the number of passengers boarding aircraft operated by commuter or regional airlines. Typically, commuter or regional airlines operate aircraft with a maximum of 60 seats, provide at least five round trips per week between two or more points, or carry mail.

Compensation of personnel — Remuneration to air carrier employees for personal services performed. Includes salaries, wages, overtime pay, cost-of-living differentials, bonuses, etc., as distinguished from per diem allowances or reimbursement for expenses incurred by personnel for the benefit of the air carrier.

Computer Reservation System (CRS) — An automated information system used by travel agents and airlines to book travelers on flights.

Corrected fared yield — Domestic passenger revenues (net of Federal Excise tax) divided by domestic-fared Origin and Destination passengers divided by great circle distance.

Corrected yield — Domestic passenger revenues (net of Federal Excise tax) divided by domestic Origin and Destination passengers (whether fared or not) divided by great circle distance.

Cost — The amount of cash (or its equivalent) actually paid for property, materials, supplies, and services, including that amount paid to ready the property or materials and supplies for use. It includes such items as transportation charges and customs duties, less any cash or other discounts.

Current assets — A balance sheet category consisting of cash, short-term investments, notes receivable, accounts receivable, allowance for uncollectible accounts, spare parts and supplies, allowance for obsolescence of spare parts and supplies, prepaid items, and other short-term assets.

Current liabilities — A balance sheet category consisting of current maturities of long-term debt, notes payable to banks, other notes payable, trade accounts payable, other accounts payable, current obligations under capital leases, accrued salaries, wages, accrued vacation liability, accrued interest, accrued taxes, dividends declared, air traffic liability, and other short-term liabilities.

Current ratio — Current assets divided by current liabilities.

D-E

Day of week — The day of the week: Monday, Tuesday, etc.

Debt ratio — The sum of current liabilities, non-current liabilities, and deferred credits, all divided by total assets.

Deferred credits — A balance sheet category consisting of deferred income taxes, deferred investment tax credits, and other deferred credits.

Department of Transportation (DOT) —The United States Department of Transportation consists of seven Administrations representing the various transportation modes, plus the U.S. Cost Guard, the St. Lawrence Seaway Development Corporation and the Office of the Secretary. The Department serve as the focal point in the Federal Government for the coordinated national Transportation Policy. It is responsible for transportation safety improvements and enforcement, international transportation agreements and the continuity of transportation services in the public interest The Department also prepares and proposes all legislation relating to transportation, coordinates transportation issues with other concerned agencies, and provides technical assistance to the states and cities in support of transportation programs and objectives.

Departure delay — The time the flight actually departed from the gate minus the time the flight was scheduled to depart from the gate per the Computer Reservation System.

Departure performed — A takeoff made from an airport.

Depreciation — A cost element representing the loss in service value, not restored by current maintenance, incurred in the course of service, against which the carrier is not protected by insurance, and the effect of which can be forecast with reasonable accuracy. The causes of depreciation include wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in technology, changes in demand, and requirements of public authorities.

Depreciation and amortization costs — A cost category that records the losses suffered through current exhaustion of the serviceability of property and equipment due to wear and tear from use and the action of time and the elements that are not replaced by current repairs, as well as losses in serviceability occasioned by obsolescence, suppression, discoveries, changes in demand, or action by public authority. It also includes charges for the amortization of capitalized developmental and preoperating costs, leased property under capital leases, and other intangible assets applicable to the performance of air transportation.

Destination — The last point in the itinerary and the last point at which the passenger is to deplane at the completion of the journey. (In round-trip itineraries, the destination and the origin are the same.)

Direct operating costs (DOC) — A cost category consisting of flight crew costs (salaries, benefits, pensions, payroll taxes, and other personnel, professional, and training expenses); fuel and oil costs (including taxes); maintenance costs (including maintenance overhead); insurance and injuries, loss, and damage charges; aircraft rentals; and flight equipment depreciation and amortization charges.

Discontinued operations, extraordinary items, accounting changes — This cost category includes the earnings or losses from discontinued nontransport operations; material items characterized by their unusual nature and infrequent occurrence; and the difference between the amount of retained earnings at the beginning of the period of a change in accounting principle and the amount of retained earnings that would have been reported at that date if the new accounting principle had been applied retroactively. This cost category also includes the tax effects of the three aforementioned cost elements.

Employee benefits and pensions — Costs incurred for the benefit or protection of employees including all pension expenses whether for payments to or on behalf of retired employees, or for accruals or annuity payments to provide for pensions; and all expenses for accident, sickness, hospital, and death benefits to employees or the cost of insurance to provide these benefits. Also includes nonlabor expenses incurred in medical, educational, or recreational activities for the benefit of employees.

Engine airworthiness provisions — Engine overhaul expenses of the current period that are capitalized in the balance sheet for amortization over future periods.

Engine code — A numerical code assigned to each type of engine. This number is internal to the ASAC and is used as an input variable in various QRS reports.

Engine maintenance labor — Cost of direct labor expended on aircraft engines and on spare parts related to aircraft engines.

Engine maintenance materials — Cost of materials and supplies consumed directly in the maintenance of aircraft engines and of spare parts related to aircraft engines.

Engine maintenance outside repair — External charges for maintenance or repair services of aircraft engines and spare parts related to aircraft engines.

Engine name — The name given to a specific engine.

Engine overhaul deferred — Accounting convention for amortizing engine overhaul costs incurred in prior periods.

Enplaned passengers — Passengers enplaned at the originating airport continuing to various destinations, whether by nonstop or multiple-stop flights.

Entity code — A Department of Transportation code for a reporting entity within an airline:

- A = Atlantic Service
- D = Domestic Service
- I = International Service
- L = Latin American Service
- P = Pacific Service

Equipment code — A numeric or alphanumeric code representing a specific model and series of aircraft. The codes and groupings of aircraft differ in the Department of Transportation (DOT) and Official Airline Guides (OAG) databases.

Fared passengers — The count of domestic Origin and Destination passengers, excluding zero-fare passengers.

F-G

Federal Aviation Administration (FAA) — The Federal Aviation Administration is an organization within the United States Department of Transportation. The FAA is responsible for the operation of the nation's air traffic control system as well as the certification of airmen, aircraft and airports, rulemaking and enforcement, and the promotion of civil aviation security.

Fixed assets turnover ratio — Total operating revenue divided by operating property and equipment.

Flight delay — The actual flight time minus the scheduled flight time shown in the Computer Reservation System.

Flight delay ratio — The ratio of flight delay to flight time.

Flight equipment — Property and equipment of all types and classes used in the in-flight operations of aircraft. It includes airframes and unamortized airframe overhauls; aircraft engines and unamortized aircraft engine overhauls; improvements to leased flight equipment; airframe parts and assemblies; aircraft engine parts and assemblies; and other parts and assemblies.

Flight equipment depreciation and rentals — A cost category for group 1 air carriers that includes all flight equipment depreciation and rental charges.

Flight equipment maintenance — All charges to operating expenses for maintenance of flight equipment of all types and classes.

Flight stage — The operation of an aircraft from takeoff to landing.

Flight time — The arrival time minus the departure time, adjusted for differences in local time bases.

Flying operations costs — Expenses incurred directly in the in-flight operation of aircraft and expenses attaching to the holding of aircraft and aircraft operational personnel in readiness for assignment to an in-flight status.

Freight — Property, other than mail, transported by air. Includes excess passenger baggage.

Gallons of fuel — The number of gallons of fuel consumed during flying operations.

General and administrative costs — For group 2 and 3 air carriers, this cost category includes expenses of a general corporate nature and expenses incurred in performing activities that contribute to more than a single operating function, such as general financial accounting, purchasing, representation at law, and other general operational administration activities that are not directly applicable to a particular function. For group 1 air carriers, this cost category includes all of the above plus aircraft and traffic service expense, passenger service expense, and promotion and sales.

General aviation itinerant operations — All nonlocal civil aviation operations except those performed by air carrier, air taxi, or commuter/regional aircraft.

General aviation local operations — All local civil aviation operations except those performed by air carrier, air taxi, or commuter/regional aircraft. Local operations are those performed by aircraft that (1) operate in the local traffic pattern or within sight of the airport; (2) are known to be departing for, or arriving from, flights in local practice areas located within a 20-mile radius of the airport; or (3) execute simulated instrument approaches or low passes at the airport.

Great circle distance — The shortest distance between two airports following a great circle route, measured in statute miles. A great circle is defined as a circle on a spherical surface such that the plane containing the circle passes through the center of the sphere.

Gross takeoff weight — The maximum gross weight (of the aircraft and its contents) that an aircraft is licensed to carry into the air on each flight stage.

H-I-J

Hour — The hour within a day: 0 is the first hour, 23 is the last hour.

Inbound domestic passenger count — Passenger count for purely domestic inbound traffic from airports within the 50 U.S. states and the District of Columbia.

Inbound international passenger count — Passenger count for the portion of an international journey that included domestic airports as first U.S. port and final destination.

Inbound/outbound-initiated trips — The number of inbound-initiated trips divided by the number of outbound-initiated trips. A measure of whether an airport is primarily an origin or a destination in the average traveler's itinerary.

Income before other items — Income before tax minus income tax expense.

Income before tax — Operating profit or loss minus the sum of interest expense and other non-operating expense.

Income tax expense — Federal, state, local, and foreign taxes, based upon net income, computed at the normal tax and surtax rates in effect during the accounting year.

Initiated trip count — The total number of trips (outbound plus inbound) made by passengers. Outbound-initiated trips had the specified airport as the starting point of the first half of a round-trip journey, while inbound-initiated trips had the specified airport as the ending point of the first half of a round-trip journey.

Injuries, loss, and damage — This cost element records gains, losses, or costs resulting from accidents, casualties, or mishandlings, after offsetting insurance recoveries. It does not include gains or losses from the retirement of property and equipment resulting from casualties; they are included in the appropriate capital gain or loss accounts.

Instrument Landing System (ILS) — A technology that allows pilots to land aircraft during periods of limited visibility.

Instrument Landing System runways — The number of runways at an airport that are equipped with the instrument landing system.

Insurance–general — Cost of public liability and property damage insurance and all other general insurance purchased except insurance covering liability for injuries, loss, and damage to passengers and cargo, and insurance carried for the protection or welfare of employees.

Interchange agreement — An agreement under which an aircraft owned or leased by one carrier is utilized to provide one-plane service over its own routes and the routes of other carriers.

Interest expense — Cost of interest paid on all classes of debt.

Interest on long-term debt and capital leases — Periodic payments that an airline must make on its long term debt and capital lease obligations. These payments must be made or the firm will be in default.

International enplanements — A count of the number of international passengers who disembark at airports to go through customs and then reenplane.

Inventory count — The number of aircraft of a specified model and series listed in the World Jet Inventory.

Inventory model name — The aircraft model name listed in the World Jet Inventory.

Inventory series name — The aircraft series name listed in the World Jet Inventory.

Itinerary — All points in the passenger's journey, beginning with the origin, followed by the routing, and ending with the destination, in the sequence shown on the ticket.

Itinerary mile — A great circle mile flown by the passenger between two contiguous points in the traveler's itinerary.

K-L-M

Leased aircraft — Aircraft obtained (or furnished to) others under lease or rental arrangements.

Long-term debt — Debt with a maturity greater than one calendar year.

Mail and freight revenues — Revenue from air transportation of both U.S. and foreign mail plus the revenue from air transportation of property.

Maintenance costs — All expenses, both direct and indirect, incurred in the repair and upkeep of property and equipment as may be required to meet operating and safety standards, in inspecting or checking property and equipment in accordance with prescribed operational standards, and in polishing or cleaning property and equipment when such polishing or cleaning is not an incidental routine in connection with the normal productive use of property and equipment. This cost category includes direct labor, materials, and outside services and maintenance overhead or other costs associated with maintenance operations regardless of the location at which incurred.

Manufacturer code — A numerical code assigned to each manufacturer. This number is internal to the ASAC and is used as an input variable in various QRS reports.

Manufacturer name — The manufacturer of the specific aircraft or engine.

Mile — A statute mile (5,280 feet).

Military itinerant operations — Nonlocal aircraft operations performed by the military.

Military local operations — Local aircraft operations performed by the military. Local operations are those performed by aircraft that (1) operate in the local traffic pattern or within sight of the airport; (2) are known to be departing for, or arriving from, flights in local practice areas located within a 20-mile radius of the airport; or (3) execute simulated instrument approaches or low passes at the airport.

Model name — The name of a distinctive type of aircraft as designated by the manufacturer.

Month — The month within the calendar year: January, February, etc.

N-O

National Aeronautics and Space Administration (NASA) — The National Aeronautics and Space Administration consists of NASA Headquarters, Ames Research Center, Dryden Flight Research Center, Goddard Space Flight Center, Jet Propulsion Laboratory, Johnson Space Center, Kennedy Space Center, Langley Research Center, Lewis Research Center, Marshall Space Flight Center, Moffett Federal Airfield, Stennis Space Center, and Wallops Flight Facility. NASA's mission is

- To advance and communicate scientific knowledge and understanding of the Earth, the solar system, and the universe and use the environment of space for research;
- To explore, use, and enable the development of space for human enterprise; and
- To research, develop, verify, and transfer advanced aeronautics, space, and related technologies.

Net income or loss — Income before other items minus expense of discontinued operations, extraordinary items, and accounting changes.

Net stockholders' equity — A balance sheet category consisting of preferred stock, common stock, subscribed and unissued stock, additional capital invested, retained earnings, and treasury stock.

Noncurrent liabilities — A balance sheet category consisting of long-term debt, advances from associated companies, pension liability, concurrent obligations under capital leases, and other liabilities generally not due within one year.

Number of flights — A count of flights falling into the specific category being reported.

Number of operating aircraft — An estimate of the number of aircraft operated by a carrier during a calendar year. Calculated by dividing "Aircraft Days Assigned to Service, Carrier's Routes" by 365.

Number of passengers — A count of passengers falling into the specific category being reported.

Obsolescence and deterioration of expendable parts — Where accounting allowances reflecting losses in the value of flight equipment expendable parts are established, this cost element reflects accruals of such allowances.

Official Airline Guides (OAG) — A division of Reed Travel Group that publishes electronic and hard-copy listings of scheduled flights by carrier, equipment, and departure and arrival dates and times.

Onboard passengers — Passengers transported nonstop from the originating airport to destination airports in the United States, the District of Columbia, and its territories and possessions. Found in T-100 flight segment data.

Operating cost per available seat mile — Total operating expense divided by the sum of scheduled and nonscheduled available seat miles.

Operating cost per available ton mile — Total operating expense divided by the sum of scheduled and nonscheduled available ton miles.

Operating lease — Leasing arrangement in which a carrier does not retain a residual ownership in the rented aircraft at the completion of the term of the lease.

Operating profit or loss — Total operating revenue minus total operating expense.

Operating property and equipment — This category encompasses all items used in air transportation services and in services related thereto. It is comprised of: airframes and unamortized airframe overhauls; aircraft engines and unamortized aircraft engine overhauls; improvements to leased flight equipment; airframe parts and assemblies; aircraft engine parts and assemblies; other parts and assemblies; flight equipment airworthiness allowances; ground equipment; furniture, fixtures, and office equipment; improvements to leased buildings and equipment; buildings; land; equipment purchase deposits and advance payments; construction work in progress; property obtained under capital leases; and accumulated amortization for property obtained under capital leases.

Origin — The first point in an itinerary and the point where the passenger first boards an air carrier at the beginning of the itinerary.

Other assets — A balance sheet category consisting of long-term prepayments, unamortized developmental and preoperating costs, and other assets and deferred charges not provided for elsewhere.

Other flight operations except rentals — For group 1 air carriers, this cost category includes all expenses ordinarily associated with flying operations not provided for otherwise (except aircraft rentals).

Other flight personnel wages — Compensation, including vacation and sick pay, of other flight personnel assigned or held inactive awaiting assignment to flight status, who not responsible for the in-flight management of aircraft, such as engineers, navigation officers, and cabin attendants.

Other flying expenses — For group 2 and 3 air carriers, this cost category includes all expenses ordinarily associated with flying operations not provided for otherwise.

Other interest expense — Interest on all classes of short-term debt.

Other non-operating expense — All debits and credits of a non-operating character that are not provided for otherwise.

Other revenues — Revenues of the air carrier that are not provided for otherwise.

Other supplies — Cost element for supplies consumed by flying operations and not provided for otherwise.

Outbound domestic passenger count — Passenger count for purely domestic outbound traffic to airports within the 50 U.S. states and the District of Columbia.

Owned aircraft — Aircraft for which a carrier possesses the ownership title.

Outbound international passenger count — Passenger count for the portion of an international journey that included domestic airports as origin and last U.S. port.

P-Q-R

Passenger and charter revenues — A revenue category comprising passenger revenues and charter revenues.

Passenger load factor — Revenue passenger miles divided by available seat miles.

Passenger revenues — Revenues generated from the transportation of passengers by air, including infants transported at reduced fares, berth charges, surcharges for premium services, and other similar charges.

Passenger service costs — Expenses chargeable directly to activities contributing to the comfort, safety, and convenience of passengers while in flight and when flights are interrupted.

Passenger weight — For the purposes of Form 41 reporting, a standard weight of 200 pounds per passenger (including all baggage) is used for all civil operations and classes of service.

Payroll taxes — All taxes levied against the air carrier based upon or directly relating to compensation of personnel.

Personnel expenses — Expenses incurred by officers, executives, directors, and other personnel, whether for the benefit of the air carrier or for the private benefit of such persons, that are directly or indirectly borne by the air carrier. This cost category includes allowances in lieu of expenses as well as expenses incurred for travel, lodging, meals, entertainment of individuals or groups of individuals, and membership fees and dues in professional or social clubs and associations.

Pilots and co-pilots wages — Compensation, including vacation and sick leave pay, of pilots and co-pilots assigned or held inactive awaiting assignment to flight duty.

Practical annual capacity — An FAA estimate of the total yearly operations that can be handled at an airport without incurring excessive delays, considering such airport-specific factors as number of runways, number of ILS runways, and average VFR days.

Professional and technical fees — Fees and expenses, other than legal fees and expenses, incurred for outside professional and technical services that are reimbursed or borne directly by the air carrier.

Profit margin ratio — Income before other items divided by total operating revenue.

Promotion and sales costs — Expenses incurred in creating public preference for the air carrier and its services, stimulating the development of the air transport market, or promoting the air carrier or developing air transportation generally. This cost category includes compensation of personnel and other expenses incident to documenting sales, expenses incident to controlling and arranging or confirming aircraft space for traffic sold, expenses incurred in the direct sales solicitation and selling of aircraft space, and expenses incurred in developing tariffs and schedules for publication.

Quick Response System (QRS) — An automated on-line capability to access a subset of ASAC models and databases to support analysis.

Return on owners' equity ratio — Income before other items divided by net stockholder's equity.

Return on total assets ratio — Income before other items divided by total assets.

Ratio of origin and destination (O & D) enplanements to T-3 enplanements — Origin and destination enplaned passengers divided by T-3 enplaned passengers.

Revenue load factor — Revenue ton miles (passenger plus non-passenger) divided by available ton miles.

Revenue passenger — A person receiving air transportation from the air carrier for which the air carrier receives remuneration. Air carrier employees or others receiving air transportation against whom token service charges are levied are considered nonrevenue passengers. Infants for whom a token fare is charged are not counted as passengers.

Revenue passenger mile (RPM) — One revenue passenger transported one mile. Revenue passenger miles are computed by multiplying the aircraft miles flown on each flight stage by the number of passengers transported on that aircraft.

Revenue ton mile (RTM) — One ton of revenue traffic transported one mile. Revenue ton miles are computed by multiplying the aircraft miles flown on each flight stage by the tons of revenue traffic transported on that aircraft.

Revenue traffic — Passengers and cargo transported by air for which the air carrier receives remuneration.

Revenue yield per passenger mile — The sum of passenger and charter revenues divided by the sum of scheduled and nonscheduled revenue passenger miles.

Revenue yield per ton mile — Total operating revenue divided by the sum of scheduled and nonscheduled mail revenue ton miles, scheduled and nonscheduled freight revenue ton miles, and 10 percent of scheduled and nonscheduled revenue passenger miles.

Runways — The number of runways at an airport.

S-T

Seats per aircraft — The average number of seats available on an aircraft. May be estimated by dividing available seat miles by aircraft revenue miles flown.

Series name — The name of a specific series of aircraft. Typically, a subset of an aircraft model.

Share — The ratio of a particular category value for a particular entity to the total of the category values for all of the entities (e.g., if Kostiuk Airlines had a DOC in 1993 of $600,000 and the total DOC for the industry was $30,000,000, its share would be 2 percent (600,000 ÷ 30,000,000 = .02).

Supplemental enplanements — A count of the number of passengers boarding nonscheduled or charter flights operated by air carriers. Commercial air carriers are certificated in accordance with Federal Aviation Regulations Parts 121 and 127 to conduct scheduled services on specified routes and may also provide nonscheduled or charter services.

Taxes other than payroll — All taxes levied against the air carrier not otherwise provided for. This cost category includes non-refundable aircraft fuel and oil taxes but excludes interest and penalties on delinquent taxes.

Terminal Area Forecast (TAF) — Historical data and forecasts for several measures of aviation activity for about 4,000 U.S. public-use airports. It is maintained by the FAA Office of Aviation Policy, Plans, and Management Analysis.

Times interest earned ratio — The sum of income before tax, interest expense on long-term debt and capital leases, and other interest expense divided by the sum of interest expense on long-term debt and capital leases and other interest expense.

Ton — A short ton (2,000 pounds).

Total assets — A balance sheet category consisting of current assets, operating property and equipment, and other assets.

Total employees — The total number of employees reported by the air carrier.

Total enplanements — The sum of: air carrier enplanements, air taxi enplanements, commuter/regional enplanements, international enplanements, and supplemental enplanements.

Total flight operations except rentals — For group 1 carriers, this cost category is calculated by summing pilots' and co-pilots' salaries and wages plus benefits, aircraft fuel and oil, and other flight operations except rentals. For group 2 and 3 carriers, it is calculated by summing pilots' and co-pilots' wages, other flight personnel wages, trainees' and instructors' wages; personnel expenses; professional and technical fees and expenses; aircraft interchange outside charges; aircraft fuel; aircraft oil; other supplies; general insurance purchased; employee benefits and pensions; injuries/ loss/damage; payroll taxes; taxes other than payroll; and other flying expenses.

Total number of engines — The aircraft inventory count specified in the World Jet Inventory multiplied by an aircraft-specific number of engines.

Total operating expense — A cost category consisting of expenses incurred for flying operations, maintenance, passenger service, aircraft and traffic service, promotion and sales, general and administrative activities, depreciation and amortization, and transport-related costs.

Total operating revenue — A revenue category consisting of passenger revenues, mail and freight revenues, charter revenues, and other revenues.

Total operations — The sum of takeoffs and landings at an airport. In the Terminal Area Forecast (TAF), it is the sum of Air Carrier Itinerant Operations, Air Taxi Itinerant Operations, General Aviation Itinerant Operations, General Aviation Local Operations, Military Itinerant Operations, and Military Local Operations.

Traditional fared yield — Domestic passenger revenues (net of Federal Excise tax) divided by domestic fared passengers divided by average itinerary miles flown.

Traditional yield — Domestic passenger revenues (net of Federal Excise tax) divided by domestic Origin and Destination passengers (whether fared or not) divided by average itinerary miles flown.

Trainees and instructors — A cost category embracing compensation of instructors and of personnel in a training status.

Transport-related costs — This cost category includes all expense items applicable to the generation of revenues from the U.S. Government as direct grants or aid for providing air transportation facilities and from services growing from and incidental to the air transportation services performed by the air carrier.

U-V

Variable operating costs (VOC) — Direct operating costs (DOC) minus aircraft rentals and flight equipment depreciation and amortization charges. Aircraft rentals and flight equipment depreciation and amortization charges are subtracted from DOC because they reflect the passage of time rather than how intensively or efficiently aircraft are operated.

W-X-Y-Z

Weight load factor — The sum of scheduled and nonscheduled mail revenue ton miles, scheduled and nonscheduled freight revenue ton miles, and 10 percent of scheduled and non-scheduled revenue passenger miles divided by the sum of scheduled and nonscheduled available ton miles.

Year — The calendar year for which the data were reported.

Zero-fare passengers — The count of domestic Origin and Destination passengers whose fare was zero.

APPENDIX C

ASAC World Wide Web Addresses

INTRODUCTION

The World Wide Web (WWW) addresses for the ASAC WWW pages that pertain to the QRS Report Server are given in this appendix. It is recommended that the user access these pages via the system hypertext links, however, to avoid having out-of-date addresses.

WORLD WIDE WEB ADDRESSES

1. **ASAC Home Page** — http://www.asac.lmi.org
2. **Quick Response System Welcome Page** — http://www.asac.lmi.org/qrswelcome.html
3. **Quick Response System Home Page** — http://www.asac.lmi.org/access (authorization required)
4. **QRS Report Server Home Page** — http://www.asac.lmi.org/access/rserver.html (authorization required)
5. **QRS Report Categories Page** — http://www.asac.lmi.org/cgi-bin/access/qrs_allcat (authorization required)
6. **QRS Report Server Help Page** — http://www.asac.lmi.org/access/help/help.html (authorization required)
7. **QRS Report Server Download Page** — http://www.asac.lmi.org/access/download.html (authorization required)

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This reports is a user's guide for the Aviation System Analysis Capability Quick Response System (ASAC QRS) Report Server. The ASAC QRS is an automated on-line capability to access selected ASAC models and data repositories. It supports analysis by the aviation community. This system was designed by the Logistics Management Institute for the NASA Ames Research Center. The ASAC QRS Report Server allows users to obtain information stored in the ASAC Data Repositories.

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